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Abstract of the national paper of Nigeria

I. Background

1. Early space science and technology-related work in Nigeria included the gaining of an understanding of the structure of lightning discharges in general and of tropical thunderstorms in particular, geomagnetism, the equatorial electrojet and the equatorial ionosphere. Research in those areas was carried out at the Department of Physics, University of Ibadan. At the Obafemi Awolowo University, Ile-Ife, research work is continuing in atmospheric physics, with emphasis on radio propagation associated with satellite communications in the tropical environment. The University of Nigeria, Nsukka, contributed to the discovery of pulsars (pulsating radio stars from space) during the period 1964-1965. At present it has an active radio astronomy programme.

2. Satellite meteorology programmes are the specialities of both the Obafemi Awolowo University and the Federal University of Technology at Minna. The establishment of the National Centre for Remote Sensing in Jos has fuelled the interest of the academic community in the discipline. At present, eight universities and institutions are active in undertaking education programmes in remote sensing and geographic information systems (GIS). These are the Obafemi Awolowo University, Ile-Ife, in cooperation with the Regional Centre for Training in Aerospace Surveys and the Centre for Space Science and Technology Education in Africa; the University of Nigeria, Nsukka; the University of Lagos; Bayero University, Kano; the University of Ilorin; the Federal University of Technology, Akure; the Federal University of Technology, Minna; and the National Centre for Remote Sensing, Jos. A number of these institutions are also contributing their expertise to the implementation of projects that require remote sensing input.

3. Nigeria is host to the Regional Centre for Training in Aerospace Surveys, one of the two regional remote sensing centres established by the Economic Commission for Africa to train African specialists in the understanding, interpretation and use of satellite remote sensing data in various aspects of economic and social development activity. Nigeria is also host to the African Regional Centre for Space Science and Technology Education—in English Language, affiliated to the United Nations, the goal of which is the development of skills and knowledge of university educators and research and applications scientists, through rigorous theory, research, applications, field exercises and pilot projects in those aspects of space science and technology that can enhance social and economic development in each participating country.

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II. New developments and future directions

4. In order to prepare for the future, the current focus of the Federal Government of Nigeria is to consolidate all the space science and technology-related activities that are taking place in the institutions mentioned above, in order for them to have a greater impact on development efforts in Nigeria. To that end, the Government established the National Space Research and Development Agency, whose immediate goals include the following:

(a) To undertake intensive human and institutional capacity-building in space science and technology fields with adequate input from research and application scientists as well as educators;

(b) To initiate programmes that will ensure a better understanding, nationally, of global climate change, with particular emphasis on how the burning of fossil fuels by industry and national transportation systems, in particular on Nigerian highways and in its urban centres, are affecting that change. Emphasis will also be placed on quantifying Nigeria's contributions to atmospheric aerosol emissions and their impact in the form of acid rain on Nigeria's forests, agriculture and weather patterns as well as on terrestrial and marine life;

(c) To establish a national data bank for archiving and interpretation of Earth observation satellite data as well as data from other related sources;

(d) To contribute to the implementation of a nation-wide information system based on the cooperative information network linking scientists, educators, professionals and decision makers in Africa (COPINE), an initiative of the Office for Outer Space Affairs of the United Nations Secretariat;

(e) To support existing research and development projects and programmes and to initiate other activities, as may be appropriate, in a number of key areas, including but not limited to the following:

(i) An understanding of the influence on the tropical climate of re-radiation of solar energy from the Earth's atmosphere into space;

(ii) Intensified solar energy research and development programmes, with a view to helping Nigeria benefit from that renewable source of energy;

(iii) Monitoring of the upwelling areas in Nigeria's coastal waters, in order to enhance the level of national income from the fishing industry;

(iv) Launching of a goal/mission-oriented micro-satellite programme that can attract the participation of Nigeria's best talents in science and engineering;

(f) To undertake a two-point approach in building space science and technology culture in the country through:

(i) The organization of orientation programmes for Nigeria's policy and decision makers, so that they can be more cognizant and appreciative of the role of space science and technology in the country's current development efforts and its future growth;

(ii) The development and provision of general education in space science and technology for the Nigerian public and for pupils at the elementary and secondary/grammar/high-school levels, in order to make Nigerians aware of (a) the world they live in; (b) their own environment and an understanding of the role of outer space in this environment; (c) their own contributions to the safety and management of this environment; and (d) their interrelationship with the rest of humanity and the universe;

(g) To pursue appropriate multilateral and bilateral cooperation programmes in order to achieve those objectives.